



FOR THE MASSACHUSETTS MAGAZINE.

A DISSERTATION on the CAUSES and EFFECTS of SPASM
in FEVERS.—By Dr. NATHAN SMITH.

(Concluded from page 35.)

S E C T. III.

WE have hitherto treated of the causes and effects of spasm in fevers, from the first attack of debility in the system, to its final resolution. It now remains to inquire after those causes of debility which we have considered as the remote causes both of spasm and fever. We can only judge of the nature of those debilitating powers by their effects, and although they are very various in this respect, yet as they all agree in this, that they all produce some degree of debility in the system to which they are applied, they are properly denominated debilitating powers.

The source where many of these remote causes of fevers spring are sufficiently ascertained, while others are involved in obscurity; this is the case with the remote cause of the late INFLUENZA, of which I purpose to treat, with a design to inquire after its origin; but previous to an inquiry of this kind, it may not be improper to give a short history of that disease.

The influenza is what Dr. Cullen calls a contagious catarrh, and belongs to the order of profluvia.

The symptoms of this disease may be divided into two kinds, common and proper; the common symptoms, such as are common to it and every other febrile disorder of this kind, is the debility in the beginning of the disease, succeeded by spasms, reaction, increased secretion and excretion of bile, &c. The proper symptoms, such as are peculiar to the influenza, and distinguish it from every other disease of this kind, are an inflammation of the lungs, attended with cough, expectoration, &c. an inflammation of the membrane of the nose and eyes, accompanied with a discharge of mucus.

Dr. Cullen has marked but one species of this genus of disorder arising from contagion; that there are more may be thought uncertain, but to me it appears probable.

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The influenza which prevailed in the autumn of 1789, and that in the spring of 1790, exhibited appearances so far different, as to induce physicians to think they were different diseases. The former agreed exactly with the contagious catarrh described by Dr. Cullen; the latter did not affect the membrane of the eyes and nose so remarkably, it was attended with greater debility, more bile in the alimentary canal, higher fever, a more violent pain in the head, back, and limbs, and I think it proved fatal to more people than the former.

It may be urged that the difference between the two above described diseases, proceeded from the difference in the seasons of the year in which they occurred; but we do not find that diseases are essentially changed by the seasons of the year, (e. g.) the measles are specifically the same at whatever season they occur. The season of the year seems only to operate by rendering the same concurrence of symptoms more or less violent.

If it may be admitted that there are two species of the same genus, I ask whether it is not probable that there are several others, and that most, if not all those complaints commonly termed colds, originate from some species of influenza; to me it appears in the affirmative.

I believe there is seldom a year but that at some particular season there is a very general complaint of colds, though often so slight as not to attract the attention of physicians, yet it seldom happens that we can refer those complaints to any unusual exposure to cold; at least this has generally been the case with me, in the course of my experience, both with respect to myself and the patients I have attended.

I have had the influenza a number of times, since I have had some knowledge of diseases and their causes, but could never, with any degree of certainty, refer it to an application of cold.

cold. At other times I have been exposed to cold, under every circumstance that would be likely to give it effect, without ever being sensible of its producing the disease.

Finally, I am doubtful whether cold of itself ever produced the catarrh, or any thing like it. I am induced to think that it is always produced by a specific contagion.

I can readily conceive how cold can aggravate the catarrh, and believe, that on further inquiry, it will be found that most of the continued fevers, which are not produced by some other contagion, may be referred to the head of influenza, made worse by cold or other circumstances.

What the source of this contagion is, producing influenza, is difficult to determine; but we should not be deterred from an inquiry of this kind, by the apparent difficulty of succeeding. Perhaps the following observations, though far from being conclusive, may throw some light upon the subject.

As there is no effect without a cause, there must be some efficient cause producing this order of fevers. That the air is the medium through which it is applied to the human body, I trust will not be disputed, but that the air of itself, assisted only by heat, cold, and moisture, can produce the effect, is highly improbable, consequently we must attribute this quality of the air to some foreign matter suspended in it.

As it is very unlikely that we shall ever be able to detect this matter, as it exists in the air, so as to bring it under the examination of our senses, I shall only endeavour to investigate the source whence it springs.

That it is often communicated from one person to another, is very probable, but that it is never propagated by other means, is doubtful. I am of the opinion that it is. I have known children attacked with a dysentery, (which is a species of the same order of fevers) who lived several miles distant from any other family, and had never been abroad, or approached by any person affected with the disease; in this case it would be difficult to account for the disease on the supposition that it is always produced by

contagion from human bodies. From such observations, I am induced to believe that both influenza and dysentery are often produced by a contagion arising from the putrefaction of vegetable matters.

From the first of August to the first of November, and from the middle of March to the first of June, perhaps there is more putrefaction going on among vegetables, than at any other period of the year. By the first of August many vegetables have acquired their full perfection, and begin to decline and pass into a putrid state, some sooner and others later. This putrefaction continues till it is arrested by the cold of winter, which puts a stop to it before the vegetables have all passed through the several stages of putrefaction, and suspends them in this situation, till the warmth of spring renews the putrefaction.

When the spring finishes, the putrefaction begins in the autumn, which perhaps is not fully accomplished till the first of June; from this time to the first of August, vegetables are generally in a growing state, which as effectually prevents putrefaction in them, as the cold of winter.

If it should be found that the diseases of which we are treating occur ofteneft in those seasons which I have supposed most productive of putrefaction, it will be a corroborating circumstance in favour of our opinion. I am ready to believe that this is the case, both from my own observations, and what I can collect from authors.

That dysenteries occur ofteneft in the latter part of summer, and beginning of autumn, is beyond a doubt; and I think I have seen dysenteries in the spring, about the time the snow went off, and things which had been frozen during the winter, became thawed.

That influenzas or catarrhs are also most frequent in the spring and autumn, I believe is evident to those who have paid much attention to the matter; nor is it any argument against our opinion if they should occur at other seasons, for if they are communicated from one person to another, it is not to be expected that the diseases should cease immediately on the cause which

which first gave rise to them being removed.

Another circumstance which may serve to support this opinion, if duly attended to, is the analogy between this order of fevers and intermittents which evidently arise from a contagion produced by other substances than human bodies; this contagion agrees with that producing influenza and dysentery, in its being capable of producing its effects more than once upon the same person; whereas those contagions producing febrile diseases, and which arise from human bodies only, can affect the same person, but once (e. g.) the measles, small pox, &c.

Intermittents are also most prevalent in those seasons of the year most favourable to putrefaction; and though they may appear at all seasons, yet it has long been known that they are chiefly contracted in the spring and autumn; and when they appear at other seasons, it is commonly in conse-

quence of their being protracted by some means or other.

On the other hand, those diseases arising from human contagion, appear as often in the winter, as at any other time; and I think generally spread with the greatest rapidity in this season.

It may be suggested, that if this order of fevers was produced by vegetable substances, it would appear equally every year at the same seasons; this objection I would obviate by observing, that there are some vegetables which are not produced in plenty, but once in two or three years; beside, if the same substances were present every year, it might require the concurrence of several circumstances, such as a certain degree of heat and moisture, to render the contagion active—(e. g.) intermittents are not every year prevalent alike, though the source whence they spring remains to all appearance the same.

FOR THE MASSACHUSETTS MAGAZINE.

F E M A L E S E V E R I T Y.

TO descant on the degeneracy of the age, to display the reigning foibles of particular classes, to mourn or frown at their predominance, is a task which belongs to the rigid moralist, or preaching philosopher.

To rave indiscriminately at the innocent indulgencies of individuals, to hurl at random, the envenomed shafts of malicious invective at the incautions brow of youthful levity, to rail incessantly even at the pleasing sallies of female vivacity, calls for the crabbed temper of the snarling cynick. His unenvied province let it be; while the more brilliant theme of female merit, shall employ the milder pen of their friendly *Bramin*. But if while pursuing the pleasing office of a friend, he should perchance encroach on the less pleasing department of the monitor, let it be remembered, that their duties are so intimately blended, that even the most cautious attention, will sometimes confound them. Shall he not then, be pardoned, if while he admires that inherent gracefulness of person, that delicate sensibility of heart,

that animated gaiety of temper, with which nature originally embellished her fairest work of creation, he should presume most sincerely to condemn, that supercilious deportment, that ill-natured severity, those malicious and indelicate sarcasms, which so awkwardly distinguish the manners and conversation of our modern belles? It is perverting the system of female subordination; it is prostituting the very temper and constitution of the sex. Such was the original texture of the female mind, such was its primary delicate construction, that it gave birth only to the most refined sentiments. The mistress of creation, when she moulded the fair mother of her fairer family, searched for her richest materials, applied her most exquisite workmanship, and produced a being imitatively perfect. Her heart was strung to the soft tones of love and compassion; her nerves were composed of the most delicate fibres, that they might yield to the tender impulse of affection, and beat in unison with the plaintive voice of woe. The fair features of her face

face were adapted to the fairer features of her mind. She was kindly commissioned to temper and soften the ruder features of unrefined man. Every soft emotion of her soul, every glance of her original temper, declares that she was born to sooth and allay the perplexities of life. How mysteriously deranged is this generous system of nature! That the amiable militant, by nature disciplined to refine the boisterous scenes of a tumultuous warfare, should betray her protector, should treacherously attempt to wield the instruments of torture, against the very victim, whose superiour strength she was born to reverence—how awkward, how disgusting, the attempt! That the amorous voice, inspired to breathe the tender accents of love, should strain itself to the rude din of reproach, or attempt the shrill tone of severity, is like founding the signal of war, on the love inspiring tabour, or mocking the harsh clangor of the trumpet with the soft strains of the lute. Every lovely feature is distorted, every nerve convulsed, the whole system disordered, by an attempt so completely discordant with its original structure. The weapons of satire, when wielded by a female, are like the bow or the battle axe in the hand of the untutored Amazon. Yet however ungraceful the management of the weapons, however unbecoming the encounter, too often does the female combatant, stalk from the field of battle amid the shrill acclamations of her applauding sex, crowned with the laurels of victory which the undistinguishing hand of blind admiration, is ever ready to bestow. Too often have I commiserated with my poor crest fallen friend, covered with disgraceful wounds, weeping over his mangled reputation, wreathing with the torture of his feelings; too often have I witnessed the deep inflicted poison of female severity, not to tremble at the missiles of this formidable enemy. Too oft have I been stunned with the shouts of their triumph at the blushing torture of a confounded victim, not to dread an encounter with this merciless phalanx. The more harmless and inoffensive the captive, the greater their triumph, the more

relentless their torture. The amorous, unsuspecting gallant, is artfully decoyed by the soft song of the siren, or the delusive wiles of the sorceress; lulled into secure repose, by some lircean draught of flattery, the attack is commenced, the blushing victim is at length released, tortured, wounded, mangled, and disgraced.

Such is the strange female propensity of the present day. Such is the mistaken sort of our modern belles. Such is the destructive murdering penchant of the witty, the *amiable* Fatima. Fatima's person is almost unexceptionable. Her heart I believe is pure, though perhaps a little tinged with the dark colouring of malice. That her mind might not belie the animated expression of her countenance, nature originally bestowed on her a lively penetration, which by a good education has been improved into a most subtle sagacity, and generated a copious fund of humor. Her taste was refined by the very hand of nature. Yet, with all these alluring accomplishments, Fatima, though admired for her vivacity, cannot, I am persuaded, boast the esteem of a single friend. By her indiscriminate severity, at least *apparently* malicious, she has foolishly forfeited her natural claim to the love and admiration of the world. Such is her insatuated propensity for satire, that the commencement of hostilities is always coeval with the commencement of intimacy. A friendly tender of the peaceful olive branch is to her the deadly signal to unsheath the keen edged sword of satire, which she scorns to return to its scabbard till glutted with the blood of her admirer's reputation, and the tender cord of union is forever severed asunder. Such is her insatiable thirst for the applause of the witling, that she will not only sacrifice the feelings of a friend, and torture his sensibility by a barbarous and *public* impeachment of characters, but will even descend to the most vulgar ribaldry, the most indelicate allusions, merely to excite a simpering smile on the vacant brow, of passive admiration. Should the humbled victim presume to retort, the ministers of vengeance are marshalled in her eyes,

in life ; or from their vast possessions.

View ingratitude as the basest of crimes, and of course the strongest mark of a vicious character ; being assured, that in the breast where it reigns, no amiable quality ever did, or could dwell. Examine well the company you keep ; for not only their manners, but their principles, will soon become yours. Give no ear to slander, because when once your understanding admits the baneful poison, your tongue will insensibly learn to disseminate it.

Seeing mankind for the most part are too little disposed to candour and to compassion, conceal your domestic

or private misfortunes ; for your disclosing them even to a supposed friend, may only serve to unveil their flimsy pretences ; your very woes they may insult ; knowing where you are embarrassed, they may increase your embarrassments ; and maliciously or wantonly enlarge the wound, of which you have too easily apprised them.

Whatever be the usage you receive from others, never let hatred settle in your heart ; avoid ostentation, with every mean pleasure, and let temperance preside over your every meal. Shun an inquisitive person ; keep much at home ; and prudently divide your time between action and contemplation.

TO THE EDITORS OF THE MASSACHUSETTS MAGAZINE.

GENTLEMEN,

I HAVE long wished that your medical department might consist of American papers. To accomplish this desire, I forward Dr. *Smith's* Dissertation, delivered at a late publick examination, Harvard University, for the degree of Bachelor in Physick.

A. Z.

A DISSERTATION, on the CAUSES and EFFECTS of SPASM in FEVERS ; pronounced by Mr. NATHAN SMITH, before the President, Medical Professors, and Governors of Harvard University, at Cambridge, July 5th, 1790 ; and dedicated to the Rev. J. Willard, S. T. D. Præs.

THAT there is a stricture of the extreme vessels situated on the surface of the body in the beginning of every febrile disorder, I shall take for granted. And in this dissertation shall endeavour to explain its causes and effects. In order to do this, it will be necessary first to take notice of some of the laws of the animal economy, on which it seems to depend.

I. The fibres of all the soft parts of animals, while in health, are endued with a certain elastick force : continually endeavouring to contract them into less dimensions.

The weight of the atmosphere may be considered as a coadjutant power to the natural contractility of the fibres.

II. Other powers counteract the elastick force of the fibres, and keep them in a certain degree of distention.

The distending power of the vascular system (the part chiefly affected by spasm in fevers) is the fluid contained in it. The application of this to the extreme vessels depends on two

circumstances. 1. The quantity of the fluid. 2. Its momentum. This last depends on the action of the heart and arteries.

III. If, as we believe, these two opposing powers balance each other to a certain degree in a healthy state ; it is evident that in proportion as the distending power is diminished ; the contraction of the vessels will prevail, and vice versa.

From these known properties of the animal economy, the causes and effects of spasm in fevers may be explained, and on this wise.

The remote causes of fevers being debilitating powers, when applied to the animal system, diminish the energy of the brain, and action of the heart and arteries, which depend on it. If the action of the heart and arteries be diminished, the blood will be propelled with less force into the extreme vessels on the surface of the body : and consequently in proportion to the diminution of the momentum of the blood, will the contractility of the fibres,

fibres, assisted by the weight of the atmosphere, prevail; and bring these vessels into less compass, and so form what is called a spasm.

Hence it appears that the immediate cause of spasm, is the contractility of the fibres of the vascular system; in conjunction with the weight of the atmosphere: the remote; whatever removes or diminishes the distending power of the same.

S E C T. II.

I consider a stricture on the surface of the body, as the cause of reaction; and account for it in the following manner.

I. While the extreme vessels are contracted, they will not receive so large a proportion of the blood as usual.

II. If there be a less proportion of blood in the extreme vessels, than is usual with the same person, and no evacuation from the system has preceded, there must be a greater quantity in some other part of the system.

III. There is no part of the system, better calculated to receive a surcharge of blood, in consequence of any obstruction given to its free passage into other parts of the vascular system, than the brain; which will appear evident from the consideration of the following circumstances.

1. The arteries that supply the brain with blood, have a short and direct course from the heart to the head; where they are suddenly ramified in the substance of the brain.

2. They are very large and internal.

3. The brain is not affected by the weight of the atmosphere; a circumstance favourable to accumulation of blood in it.

From this view of the matter, it appears, that the resistance given to the motion of the blood, in its passage through the extreme vessels, situated on the surface of the body, throws a larger quantity upon the internal parts, and especially the brain.

As the strength and motion of the system in general, depends much on the quantity of blood in the brain; an increased quantity circulating through it in a given time, will increase the action of the arterial system.*

This increased action of the heart and arteries, is what is called reaction; and appears to be the chief agent in the cure of fevers; for if the vessels on the surface of the body are contracted, it will require a greater force to restore them to their natural capacity, than it did to retain them in that situation, before they had been collapsed: this makes some additional force in the action of the arterial system absolutely necessary in the cure of fevers: and I think it may be observed as a rule in practice, never to reduce the pulse by bleeding, and other evacuations in the beginning of fevers, to as low a standard with respect to force, as it was at with the same person in time of health: on the other hand, this increased action may need a check; for when a spasm has taken place, it cannot be removed instantaneously: and while this stricture remains, the blood has a peculiar determination to the brain and lungs; which though so necessary in the cure of fevers, yet may be so violent as to render those organs unfit for the purposes of life: should it remain but a short time in this case, by bleeding we may moderate the impetus of the blood in those parts: while the actions of the arterial system remain sufficiently strong, to overcome the spasm, in a safe and gradual manner.

The due regulation of the action of the arterial system, I apprehend requires as much caution and judgment as any point in practice: and we ought particularly to be on our guard not to mistake quickness for strength in the pulse: for it is the very reverse; and nature often seems to endeavour to compensate the want of strength, by frequency of pulse.

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* I once attended a patient exhausted by a hectic fever, who when his dissolution approached, desired to be taken out of bed; but no sooner was he erect, so that the weight of the blood opposed its passage into the brain, than he became dead to all appearance; but being laid down again he revived: this was repeated several times, and always with the same effect: and I have no doubt but that if he had continued in an erect posture, he would never have survived the first time of fainting; but by being kept in an horizontal posture, his life was preserved several hours.

There is a phenomenon in fevers which I think may be referred to the head of reaction, or an operation of the *Vis Medicatrix Naturæ* : it is a preternatural quantity of bile, secreted and poured into the alimentary canal : this has by some been looked upon as a part of the disease ; and consequently they have prescribed methods to dislodge it : but I am so far from thinking it an aggravating occurrence in fevers, that I believe it has a considerable share in the cure : I am led to this conclusion by the following observation.

1. Nature is commonly uniform, in opposing the same remedies, to the same disease : And accordingly we find that a preternatural quantity of bile in the alimentary canal, is a pretty constant attendant on fevers ; and so far as we can judge, nearly in proportion to the debility and spasm, which took place in the beginning of the disorder.

2. The increased quantity of bile, does not appear to exist previous to the accession of fever : But succeeds it : And is produced by a preternatural quantity of blood being thrown into the *vena porta*, in consequence of the spasm of the extreme vessels.

3. The medicines commonly employed to evacuate bile, do not appear to produce their effect on the system by doing so : But in a very opposite manner. Sickness and vomiting are common symptoms in the beginning of fevers : And are often attributed to bile collected in the alimentary canal : In order to evacuate it, emetics are often prescribed, and they are commonly successful in curing the symptoms : But that they do it by evacuating bile is very doubtful : For we do not find that they are more effectual when much bile is evacuated by them, than when little or none is brought up : This has been remarked by different authors. Beside if the action of emetics is attended to, I believe it will appear, that they are not well calculated to lessen the quantity of bile in the alimentary canal : For the agitation and compression

which the liver undergoes, in the operation of puking, while it is surcharged with blood, must necessarily increase the secretion of bile, sufficiently to compensate for any small quantity, which may be evacuated by the emetic.

4. From the analogy, bile has to other bitters, it should seem that instead of causing sickness, it would cure it : Other bitters have this effect : And we have known the bile of some animals, when given as a medicine, to operate in this manner.

Upon the whole, I am inclined to think, that emetics do not produce their good effects in the cure of fevers, by evacuating bile : Nor by their immediate action on the stomach, without its assistance : But by applying the bile, to a larger surface of the alimentary canal ; and especially by bringing it into the stomach, which has a greater connection with the system in general, than any other organ, they remove the sickness ; and by means of the sympathy between the stomach and surface of the body, they determine the blood into the extreme vessels ; and have a considerable effect in restoring them to their natural state. In like manner, I imagine nauseating doses of emetics produce their effect, viz. by inverting the peristaltick motion of the duodenum and stomach, they bring the bile into the stomach, &c.

After all, I would not be understood to mean that the bile never errs either in quantity or quality : On the contrary, I am convinced that it does, but do not think, that this is the case, so often, as some would have us believe : For though the bile may be very different, both in quantity and quality, in disease, from what it is in health ; yet this change is adapted to the cure of the disease ; and the bile answers the exigencies of the animal economy better than it would, if it should remain in its healthy state, under the same circumstances of the system in general.

To be concluded.)

A DISSERTATION ON REVENGE and CRUELTY.

REVENGE and cruelty are passions of near alliance to one another, and are, beyond doubt, the most base and abject, as well as the most detestable of all vices.

The first of these, in whatever false lights the soul may view it (for men too often endeavour to gild it over with the borrowed names of honour, magnanimity, and courage) is, in reality, ever the child of cowardice alone, in the most weak and servile minds; and the latter in itself is so truly brutish, and so universally hateful, that the general consent of the world has in all ages agreed, in compliment to our nature, to call it inhumanity.

The valiant and generous mind contemns these savage passions, disdaining even to know what revenge is; and the greatest of all instructors has taught us, that true greatness of soul consists not in revenging ourselves of, but in doing good to our enemies: and it is worthy observation, that the greatest men of the world have ever been of the same opinion, and *Alexander* and *Cæsar*, *Epaminondas* and *Scipio*, with a long *et cetera* of heroes, have, by mere innate virtue and nobleness of soul, been taught to obey this precept as strictly as if they had heard it from the mouth of the divine teacher.

Cruelty is the vice of cowards only; the man of true courage meets, with open force, his resisting enemy; but no sooner has he conquered, and sees him prostrate, unresisting, and at his mercy, but he exerts and puts in act that mercy which is ever the characteristic of great minds; and, instead of butchering him, will tear off his own garment to tie up the wounds he had before made.

True courage is itself an amiable virtue; and as, with regard to religion, those, who will not be at the pains of living up to its precepts, often put on hypocrisy in the place of it—so the coward, not daring to tread the paths of this honourable quality, makes massacre and murder his pretence to it. Fear is the true parent of cruelty. Civil wars are, of all others, ever the most bloody, because they are

carried on by persons who are each in constant terror of his neighbour; and tyrants are bloody, merely because they fear: It is their general terror alone that makes them the general butchers of their people. *Mauritius*, who well knew the human mind in this respect, when he was told that *Phocas* had a design to kill him, enquired what was the cause, and who and what the person? and on *Philip's* telling him, That he was a mean person, and a known coward, answered, Then I wonder not that he is cruel, and a murderer!

It is easy to conceive, from the nature of causes and effects, that this savage temper cannot be long exercised without bringing on, one way or other, the destruction of the person who is possessed with it. Revenge is, to him who is possessed with it, a continual anguish, and an excruciating pain; it is an eating canker at the heart, a biting plague that gnaws and incessantly preys upon the very soul. The revengeful man wears in his breast a torment greater than any he can inflict on the person his malice aims at the destruction of, and has often the additional misery to see his enemy smiling in ease and security, while his own heart is burning and torn to pieces within him for the miscarriages of his designs against him.

Let us put even the best face possible upon the designs of the revengeful man, and they will not then appear other than misery to a wise or disinterested person. The means of revenge are generally slow, tiresome, and uncertain; and the execution difficult, painful, and dangerous. If he succeeds, the consequence is, often, that he must be a vagabond for life afterwards, a torment to himself from the stings of his own conscience, and either an eternal wanderer, with the dread of justice at his heels, or a curse to his friends, if there are any such, in the continual care of hiding him from it. This is the best face that revenge wears; but we are to consider, that it much more frequently happens, that its plots miscarry, or the mischief intended by the revengeful

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